

Botanical Notes

No. 4

Castillo -

Ferns

Mosses

Phanerogams

fente de
pas.

No. 526.

Spiny (prickly) woody vine
with comp. leaves of 4 leaflets,
the 2 term. larger, & flat
folds.

Overhanging the La Juana.

No. 527

A shrub $1\frac{1}{2}$ high, erect, with
term. spike of rather large yellow
fls.



Corolla 2 upper. upper ovate
entire, oblong.
Lower 4 lobes, lobes =, ob-lance-
olate, all yellow
sharply hairy outside, fresh.

Calyx of 4 sepals, the 2 at base
with lips are brown, fringed,
veins dark green, grate.



The 2 others are lanceolate.

green, shorter, acum.

all hairy.

2 narrow green bracts at base of
each flower.

fil. yellow, hairy (sparsely) toward
base, attaches near base of
corolla. Stamen 2, alt. with
lips, exserted, anthers 2 cells,

dehiscent, long, yellow,



a gland surrounding ovary.



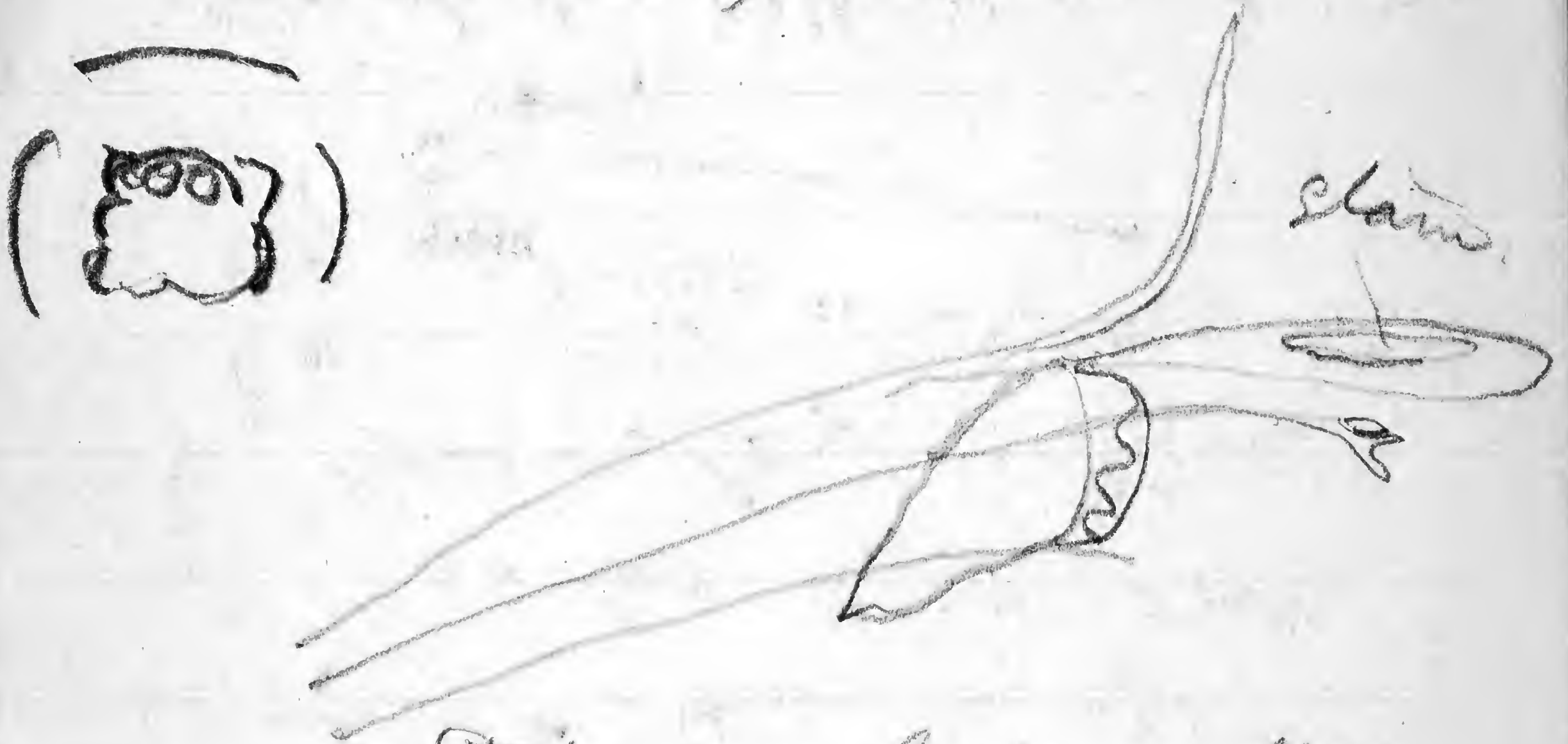
ovary

Style slender, yellowish, exserted, stigma
green, elong. small, term.

Ovary inferior, greenish, smooth,
2 celled, a couple of ovules in each cell.
Along the La Javana.

528.

alt. 1 rank (1 mile) leaves
spike of fls. at end.
Stem spirally twisted at top



Style very slender, white,
smooth, stigma 2 lobes, with a
sort of spur on one side.

Stamen 1, filament brown,
glabrous, red, exserted, anther
cells 2, yell, long. $\frac{1}{2}$ on tube of
corolla.

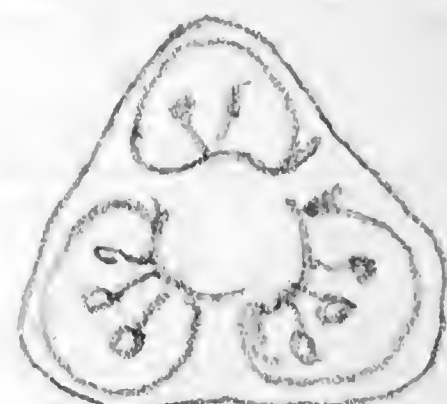
Corolla with narrow about 5' lobes
border, lobes recurved. Lobe
red. Calyx of 3 (or 5?) lobes
(3 large anyway) red.

one large one above & 2 below,
a red bract at base of each fl.
7 red (a calyx?) 3 lobes.



white
ovary

Ovary 3-angled



3 celled, ovules
numerous, stalked.

ovary superior
smooth

Along the La Juana,

529

Large leaved tree, on bank
of La Juana. Fruit large
round, with a lot of light
"exposed" seeds.

530

Shrub 6' high, hanging over
the La Jua. n.

Fls. yellowish, in racemes.

Les. acum. oblong ovate.

531

(7)

Small tree, 4' diam, 15' high.

Over La Grana

Lev. oblongate, obscurely
crenate, alt.

Fls. small wh. in thyrse. P. 1


~~or lobed sepals.~~

~~Calyx hairy, whitish, 5 lob~~

Calyx of 5 ovate, small sepals,
whitish

Corolla of 5 white, curled,
same petals, on calyx

Stamens 5, on calyx, on short
white fil. anthers elong. yellow

2-celled, erect. Style slender, white,
just beyond stamens, smooth, stigma
minute, term. 

Ovary superior, whitish, smooth
one-celled (?)

General aspect of a small Eucalyptus
glaberrima

532

Solanum - tree 15' high,
4' in diam. branching, bark
gray, leaves ^{almost} entire, fls.
white

La Grana



Fl. X 1 lobes of calyx
hairy

Corolla white
anthers yellow,
stigma green.

5 parts



ovary inferior
smooth, white



fruit
ovary 2-celled

533

Tree, medium size, branching,
spreading; gray.

Leaves pinnate, comp.

Fruit red, with black seed
surrounded by pulp.

Poisonous

Along La Jirana

534

Leaves in whorls of 4, leaves
oblong, large; fls. in
thyrse, small, whitish.

Berries.

Shrub overhanging San
Juan (rpt.) (may be small
tree?)

along river banks, called, as to
name of fruit, in some places.

535

Tree along the San Juan.
Lvs. Camp, fl. white,
in heads, (Pinnate lvs.
7-8 in lvs. or short apices)

There is a large gland on upper
side between each pair of leaflets

Stems very smooth, fls.
white, slender, smooth
anthers minute, 2-celled
fil. united at base with a
tube in corolla

Calyx & corolla each with 5
small lobes

Ovary smooth, elongated, superior
whitish; style very slender
stigma minute; termm.

536,

Phryma-like - coarse wven
 $1\frac{1}{2}^{\circ}$ - 2° high. Along the
Savabos

537 (chax)

Coarser Buzma. Hanging
from trees - Savallos &
La Juana.

Per. opp. fruit with hooks, fruit
hairy. (H. x 1)

Sepals 5 scarious, erect, green midrib,
hairy.

Stam. 5, opp., anthers 2-celled, yellow

Long X. filament smooth, white,
by prog. style erect, smooth, green,
stigma white, capitate.

ovary superior.

(one called? finally 1-seeded.)

538 (change ^{call 537})

Large pea, very long vine,
fls in racemes on very long
(in fruit) peduncles.

Pod 2-4^(or) seeds - soft-hairy
Cust. greenish & not agreeable.

Beans black

Along Savalos

also along other stream

539

Small sedge (grass-like)
near mouth of Savalos

540

white (yellowish) flowered vine (corolla)
spreading over small trees

Fls. yellowish, in racemes



Fl. x 1

Petals 6, yellowish (olive)

narrow, not very acute,
each one bearing a stamen at middle

Stamen 6 on short fil. anthers brownish,
2-celled, pollen yellowish.

Style smooth, greenish, stigma ternate
stamens, yellow, smooth.

Calyx small, greenish, scarcely divided.

Ovary inferior, 6-celled (7)  fleshy but small

541

Rather low (4° - 6°) coarse,
spring, large leaves white fl.
Solanum. Mouth of
Javalos - low place.

542

Aquatic (submerged) plant on
log in Los Sarcos.

Peduncles 1 flower

fl. x1 Calyx of about 5 minute,
pink sepals. Stamens 8, filaments
fleshy, pink, smooth, hypog. Anthers
div. annate, introrse, 2-cells; ovary
superior, smooth, green. 1-celled ^{free} ^{cent} ^{place}
Style 2-lobed, stigma's thick, greenish
Ovules many.

543

Composite weed along La Grana
Fls. in dense heads in axis.

white, disc. only, stigma's
purple. (violet)

Frut 544

Green leaved (red-veined) shrub
(small tree?)

Alt. lvs, fls. in short
pedicled clusters in axils

Along Savala

545

Large per (cormose) -
see fruit.

Fls. on very long. peduncles
short spikes

Along La Juma, etc.

546

Small tree along Savalos
with small whitish fls. in
axile spikes, alt, ovate,
pubescent, entire lvs.

(Perhaps I have numbered
this ?) Deciduous fls.

10/11/1

Sepals 5, ovate, membranous, with brownish
spots (scales?)

Petals 5 small, erect, ~~diffuse~~

Stamens 10, fil. white, small

anthers 2-celled, yellow.

~~style 1, stigma~~

Fronds not pubescent

547

Woody vine (a weak shrub
with opp. entire, oblong, ovate.

acute (a somewhat recurved)

lvs. (short petioles)

Fls. in short clusters, (small heart)

Cor rather few-flowered head.

Along San Carlos La Jua

Petals 5, clawed, yellow.

(² brown in center?)

Sepals 5, Δ, obtuse, brown

² yellow glands? inside of
sepals at base (i.e. 2 at base of
each sepal)

Stamens 10? fil. whitish, anthers
2-celled. brown, pollen
light yellow.

Styles ~~erect~~², whitish, stigma

somewhat 2 lobed, flattened

styles hairy.

Ovary superior, deeply 2 lobed
really 2 ovaries.

Bark brown

548

Large Palm (on which ferns
grew) above Castillo.

Red fruit

Trunk short (70 feet), 15" thick,
not rough.

Leaves 12' long, (2 ranked)

Leaflets lance linear, acute,
15'-26' long.

Petiole grooved above, with
short recurved spines along
the 2 edges.

Fruit matting down in
the crown among the bases
of leaves.

In low ground above

Castillo. Spike short, compound
ovoid.

549

Large Solidago

Frond. Lvs. lance oblong
remotely serrate.

Fls. yellow papery of numerous,
fine white hairs

Corolla, stam. + pistil uniform
yellow. Chaff of narrow,
num. scales ~ to fls., obtuse

550

Large Cassia with
square prob. Corolla
Leaves & Frond

Fls. yellow, 1' or more in diam,
petals obtuse, lower 4 or 5
anthers very large.

 ovary - smooth, green

551

Tree^(?) with smooth, elong,
striped fruit -

Fruit only -



castillo.

552

Chili Pepper (back of
house at Castles)

Frut - La Gravel

Flower pale bluish white,
with the ordinary form, stamens
dull v. erect.

Leaf oblong-ovate entire,
acum., smooth, petioled
alt.

ovary 2-celled, seed flattish,
numerous.

Shrub, branching, cult. v.
rare wild, 40-60 high

553

Tall warm erect Mint.
Common at Castells.

7 fruit.

Fls. minute, dull purplish white, corolla
hairy upper lip 2 lobes, lower 3 lobes
lobes recurved. Style purple, stig. brown
exserted. (on lower part of corolla) stamens
exserted ("purp. (pollen yellow) 4. upper pair shorter,
anthers small, hairy. Leaves cordate, dentate, petioles

554

The "Fig" from up the
San Juan.

A good sized broad, spreading
tree with alt. ob. ovate lance
obtusish leaves, entire,
short petioles. Twigs thick
with large scars.

Fruit sessile in axils
of leaves.

In fruit

555

White flowered weed common along
R.R. Castillo

Plant 1' - 1.5' high, branching
erect.



fl. x1.

Calyx of 4 small reflexed,
ovate green, acute, smooth sepals.
Corolla of 4 spreading (or reflexed)
greenish white, obovate, obtuse
petals.

Stamen 4, alt, erect, fil. white,
anther yellow, 2-celled, annate
(really versatile & introrse)
a tuft of fine white hair
surrounds essential organs.

♂ pistil x1

Ovary superior, obovoid,
green, smooth, style erect green, smooth
& stamens 4, small, terin.
Ovary 2-celled, axile plac.
ovules small numerous.

of 1000

556



head x1



leaf x1

Small composite, no rays,
fls. all reg.

abov. flat, winged (margined)
no pappus.

Recept. narrow, columnar,
no chaff.

Yellowish fls.

On banks at Canillo

557

The yellow (small) flowered shrub
found above Castillo, - 2°-5° high
* Calyx small, with 5 Δ short
lobes, greenish.

Corolla yellow, monopetal, 5-lobed.

Stamen 5, ^{hypog.} anther yellowish, 2
cells, minute. Filaments short, alt.
Lobes of corolla white hairy inside
at base.

Ovary inferior, green.

xx Stigma 2 - style very
short (2 lobed)

ovary (1 or 2 cells, no more)
could not make it out.

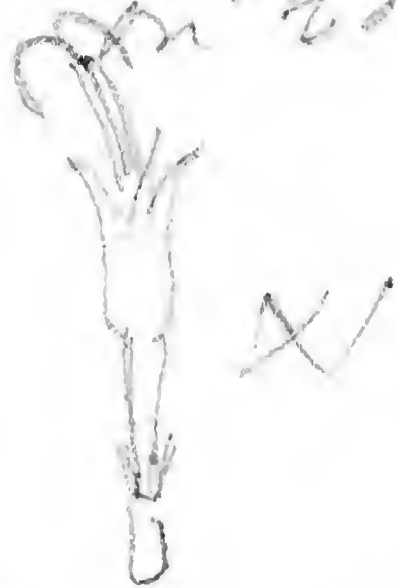
Ovary is really $\frac{1}{2}$ inferior,
(this is the spreading shrub that
at first reminded me of an
umbellifer)

Found Indigo plant at
Castillo.

Also sponge-like (sponge) head = ^{very} large
558.

The coarse, branching thistle
like comp. on ⁱⁿ bottom above Castillo,
4' high

No rays.



Corolla white 5-lobed, anthers
purple, stigmas linear, 2.

Pappus of short white hairs.
Chaff none.

559

Branching, herb. Solanum, erect,
1st 2nd high on hillside near
Ft. Coahuila.

Flo. white small,

Fruit black.

♂ x 1 Corolla white, anthers
yellow.

560

The prostrate little weed with
small, broadly cordate leaves
(opposite) stipules forming a
fringe across stem. Smooth.

Found near La Grange & on
hill near Fort.

Bract superior, Δ , 1 celled, seeds
several. green. smooth.

Stigma slender, 3, white.

Calyx of 5 lance-ovate ~~lobes~~, green
acute lobes (with margins somewhat
scarious.)

561

The oblong-ovate, (cordate-base)
leaved woody(?) vine with shiny
yellow fls. W. of Castillo (along
creek)

562

The large white-fl. *Eupatorium*.
Becomes a small tree, - 4' in diam
& 15' high.

Very common at Castillo
No rays. Fls all white
Pappus of white (slightly tawny?)
fine hairs (=)

Chaff none
(Found also at Moyogalpa)
Gray bark.

563

Small hairy Cassia -

Orang hairy, green.

3 lower stamens very long

Fl. $\frac{3}{4}$ " in diam sepals unequal


greenish.

Leaflets ellip, aristate.

Near fort.

Curved pods.

564

 corolla

Hairy, branching, erect Mint

Blue-flower - Near fort.

Calyx strongly 5 angled & 18

ribbed, lobe 5 spine-like

all hairy (white (long) hairs

extending inward & almost

closing throat

corolla purple, upper 2 lobes

lighter in center & with a
brown elongated spot

The lowest lobe is a hood-like
affair like that of the common
mint from Oenothera
Style purple, smooth, stigma
purple, unequally 2-lobed.

Stamen 4 on short hairy
filaments, about equal, &
evidently included in the
little hood at first

Castell

Plant with odor a little
like Catnip

565

The climbing, ~~corro~~ parasite
with fls. in spadix.
Spathe yell.-wh. Ovate
mouth enclosing the
spadix $\frac{1}{2}$ in diam. & 4'
long; - the terminal 3
in berry (stamens)

(This is similar in structure
to the one in ale. - if not
the same) - Spathe 6 in long
Leaf ovate, rounded at
base, acum. petiole
On tree near Castillo

566

The very spiny, prostrate
(or weak) shrubby spreading

Shannon. Fls. (corolla) violet
calyx green.

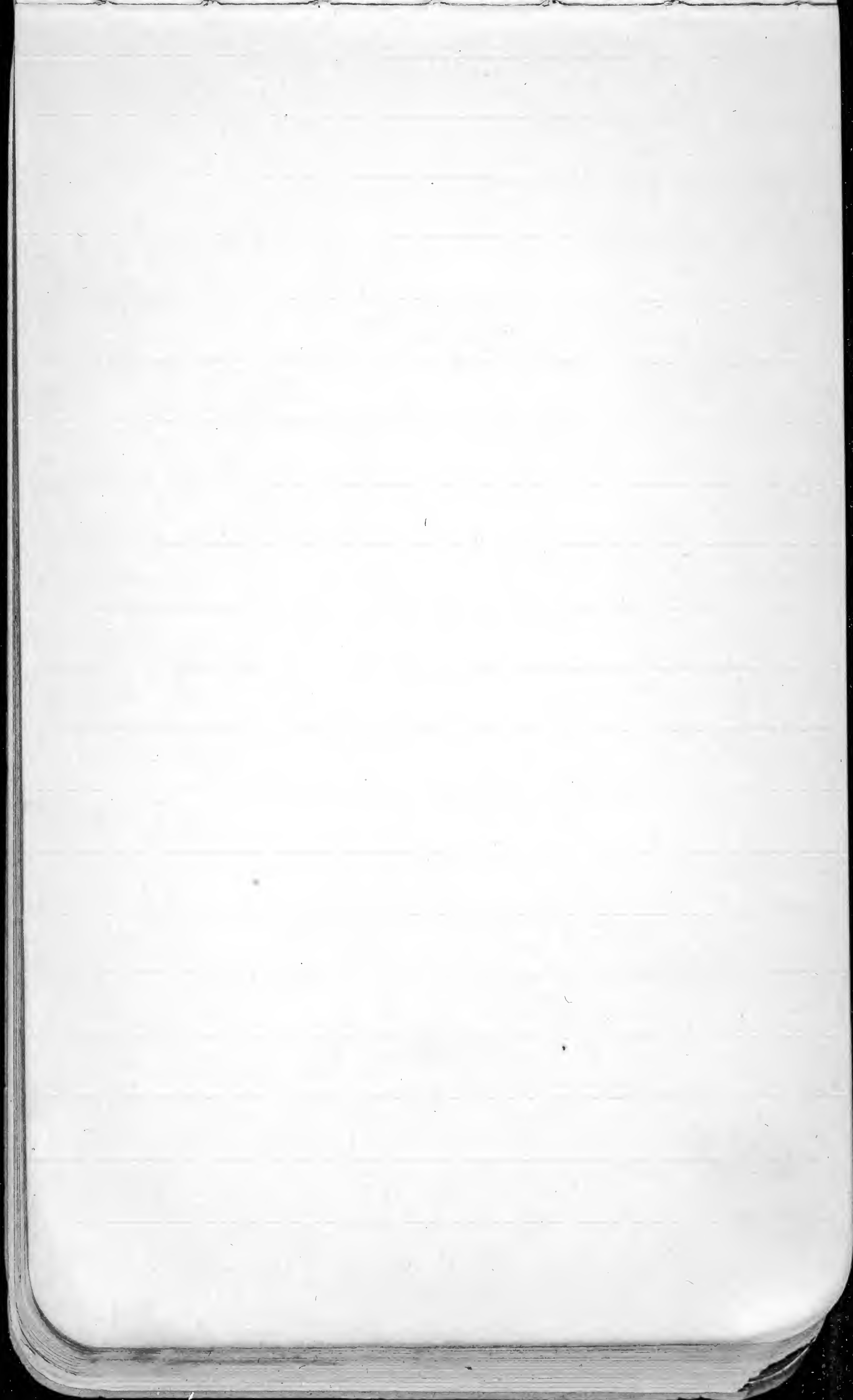
Stamens yellow.

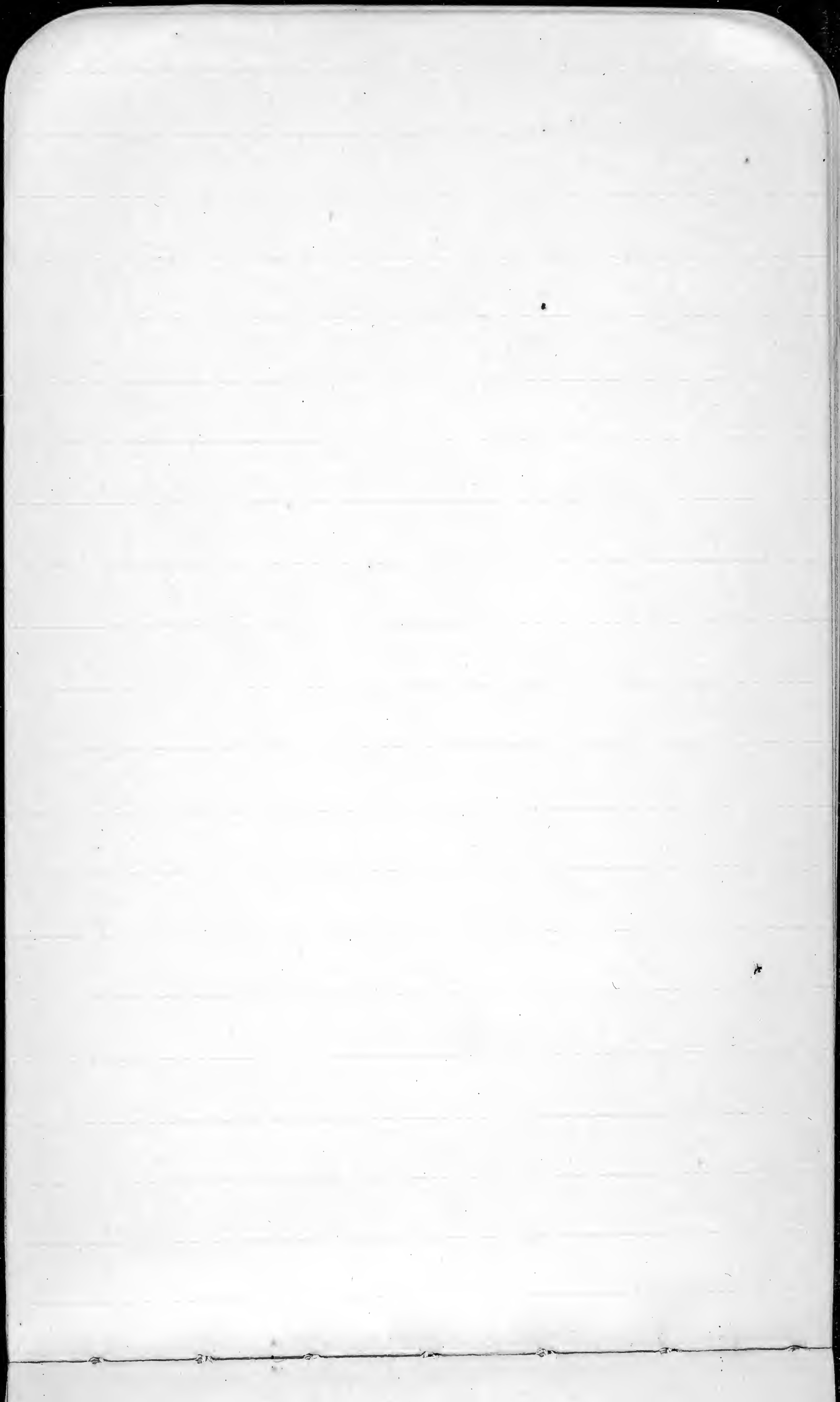
Leaves narrow, everything
except fls. - very spring.

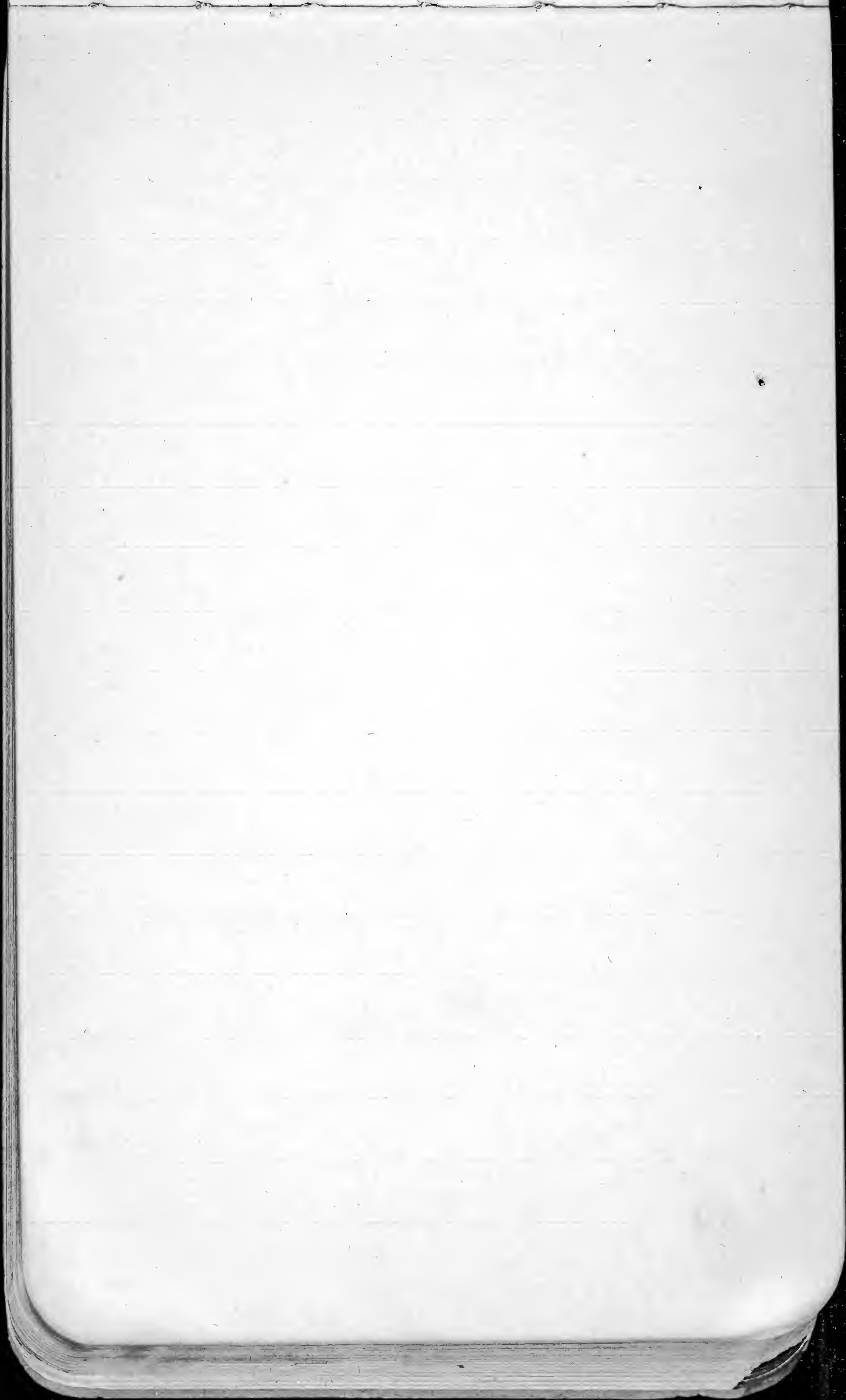
On bottom near Castle

565

The climbing, coarse parasite
with fls. in spadix.
Spathe yell.-wh. Ovate.
Mouth, incurved.
spadix.







Alvarado Vargas
ranch - on
Right bank of
San Juan
12 miles below
San Carlos.

Corosa Palm
There are the elongated
seeds found on this
ranch.

Mich. 12 - 1892

rocky

12 ft.

found shells for 100 yds.

15 ft.

red clay

river

E S
|
W N

Bank literally
packed with clam

shells, some with
valves united

showing stiches by $\frac{1}{2}$ in

traced it back over

150 yds up the 2nd

slope, to an elev. of
at least 150 yds

Heptamer

Bank 120 yds

River



Flat

Index to Castillo Spec.

C. = Castillo, J. = Laguna, S. = Savalos.

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552

Moyenella species found
also at San Carlos & Castillo.

S. C. = San Carlos.

C. = Castillo.

1- C. ^(?)	79- C.	143- C. & S. C.
6- C. [?]	81- C.	146- C. (C)
9- C.	83- C.	163- C.
12- S. C. & C.	85- C.	164- C.
15. S. C. & C.	94- C. ^(?)	178- C.
22. C.	98- C.	185- C.
32. C.	104- C.	195- C.
34. C.	105- C.	197- C. & S. C.
36- C.	108- C.	199- C. 108- C.
39- C. ^(?)	110- C.	200- C.
43- C.	113- C. ^(?)	204- C.
46- C.	121- C.	209- C.
47- C.	122- C.	212- C. ^(?)
53- C.	128- C.	212- C.
58- C.	134- C.	226- C. & S. C.
66- C.	137- C.	237- C.
69- C & S. C.	139- C. & S. C.	239- C.
74- C.		

241-(?) C.?

242 - C.

243 - C.

245 - C.

248 - C.

252 - C. + S.C.

258 - C. (?)

264 - C. (?)

266 - C.

267 - C.

270 - C. (?)

273 - C.

282 - ~~C. (?)~~ C.

284 - C. + S.C.

290 - C.

291 - C. (?)

302 - C.

310 - C. (?)

311 - C.

312 - C.

313 - C - common.

323 - C. (infl.)

72 species.

Cont. (see prev. pages.)

553

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566

2

1884

I.

Lichen - Found log near the
La Guana.

Lichen gray, slender, 1' or more
high, cylindrical, with little
projections all over.

II.

Small Delaginella -
on banks of stream in
deep woods S. E. from
Castillo. Fossils flat,
4'-5' long.

west of Castillo.

No. R.

Brown leaved moss with long
fronds ~~lying~~ ^{standing} out from trunk
of small tree.

Calyptra with green herbaceous
hairs. Front small, running
downward.

S.

Small, light colored moss, (same as
found on logs on Cuatrecasas)

in good fruit; short fruit.

Found on logs near the
La Grana.

No. O.

Moss.

This paper has specimens of probably three species of mosses from logs in deep woods west of Castillo. A lot of odd specimens.

No. P.

Moss.

The very long, delicate, slender moss, hanging from branches of trees & shrubs in deep woods west of Castillo.

No fruit.

No. Q.

Lichen etc.

This paper contains a lichen and a — (?) found on small tree in deep woods

x No. K. Moss.

Cy. Lindrothoecium-like -
Common on old logs, etc.
Found in deep woods west
of Castillo.

Several No. L. Moss.

Somewhat similar to K, but
leaves looser, & fruit shorter
(capsule), & with larger(?) calyptra.
On logs. W. of Castillo.

Several. No. M. Moss.

Dark green, flat, with acuminate
leaves. Found on logs in
deep woods west of Castillo.

Several. No. N. Moss.

Similar in general appearance to
M. but leaves = N - Same loc. & hab.

Small, No. 7.

Moss

Very delicate, compound moss,
Found on log in woods west of
Castillo. Finely beaded, light-green
little fellows. Fruit rather
elongated.

Small, No. 9.

Moss

Very small, Hypnum-like moss,
with small fruit & long
calyptra.

Covering dead logs, woods
west of Castillo.

2 No. 9.

Moss

Very, very minute, similar to
9. but fruit & all smaller.
Found on burned log near
Castillo.

1. No. E.

Exceedingly delicate, filary,
light green moss, growing
around a stick (dead branch)
in woods West of Castillo.

No fruit.

1. No. 7.

Moss with narrow, compact, long
fronds, creeping over a dead
log. West of Castillo.

More finely divided than the
following.

No. 9,

Somewhat similar in general
appearance. Fronds small,
directed downward.

(coarser than
No. 7.)

Growing on trunks of trees (standing
out in tufts) in deep woods West
of Castillo. Has teeth of peristome
quite long.

X No. 6.

Very delicate, much branched
spreading moss growing on trees
(especially small ones) & shrubs in
deep woods west.

Fruit small, directed downward.

a few. No. 7 ^{XI} ✓

Very delicate, small moss, growing
on opp. sides of a dead stick
in woods west of Castillo.

Fruit very delicate, cup flaring
above.

Mosses + Club-mosses,
Lichenes, etc.

No. A.

Selaginella - Large branching
form. Common in woods
West of Castillo.

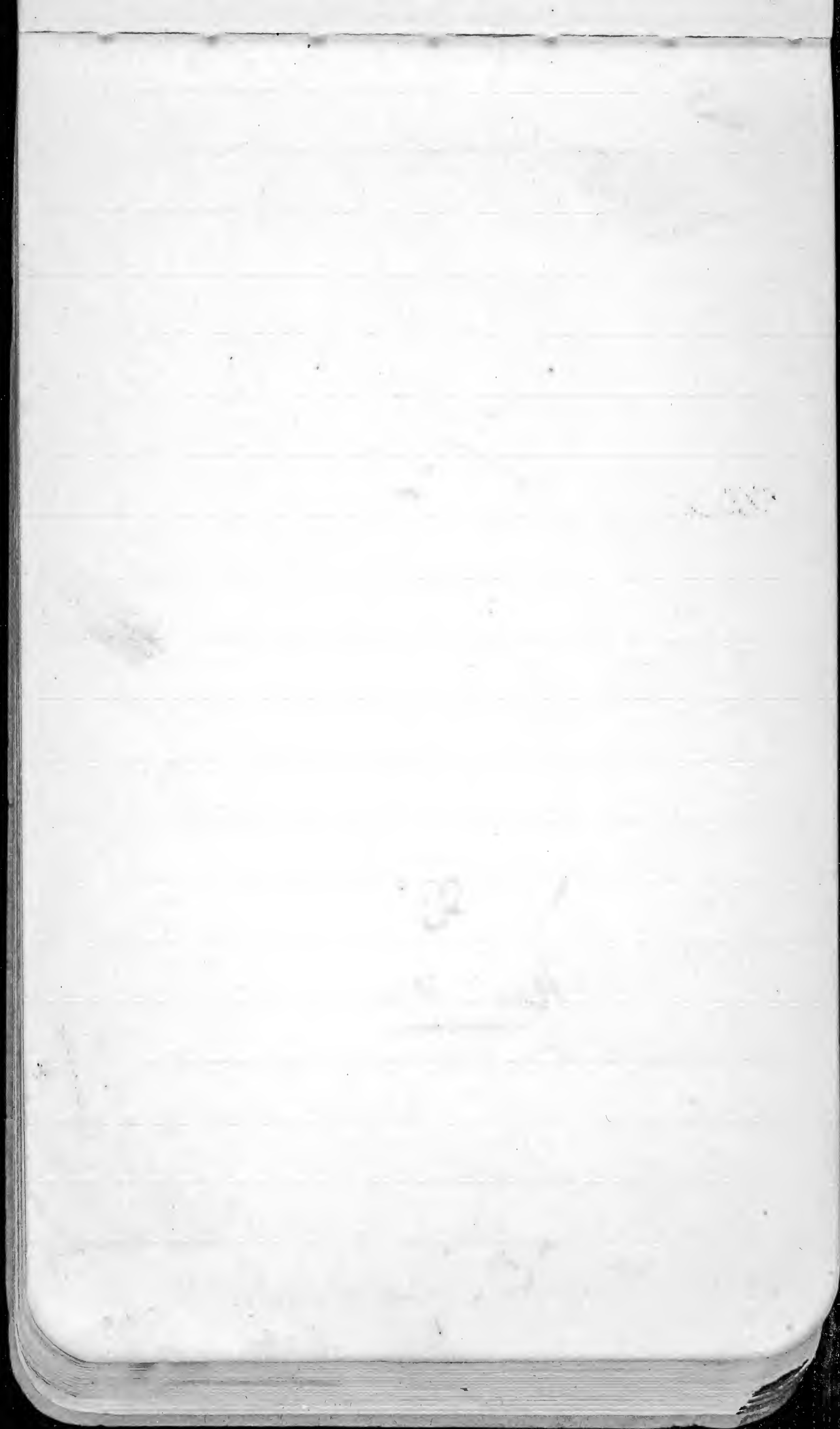
No. B.





A broader frond, - more like
the Onutipe spec. "Bushy".

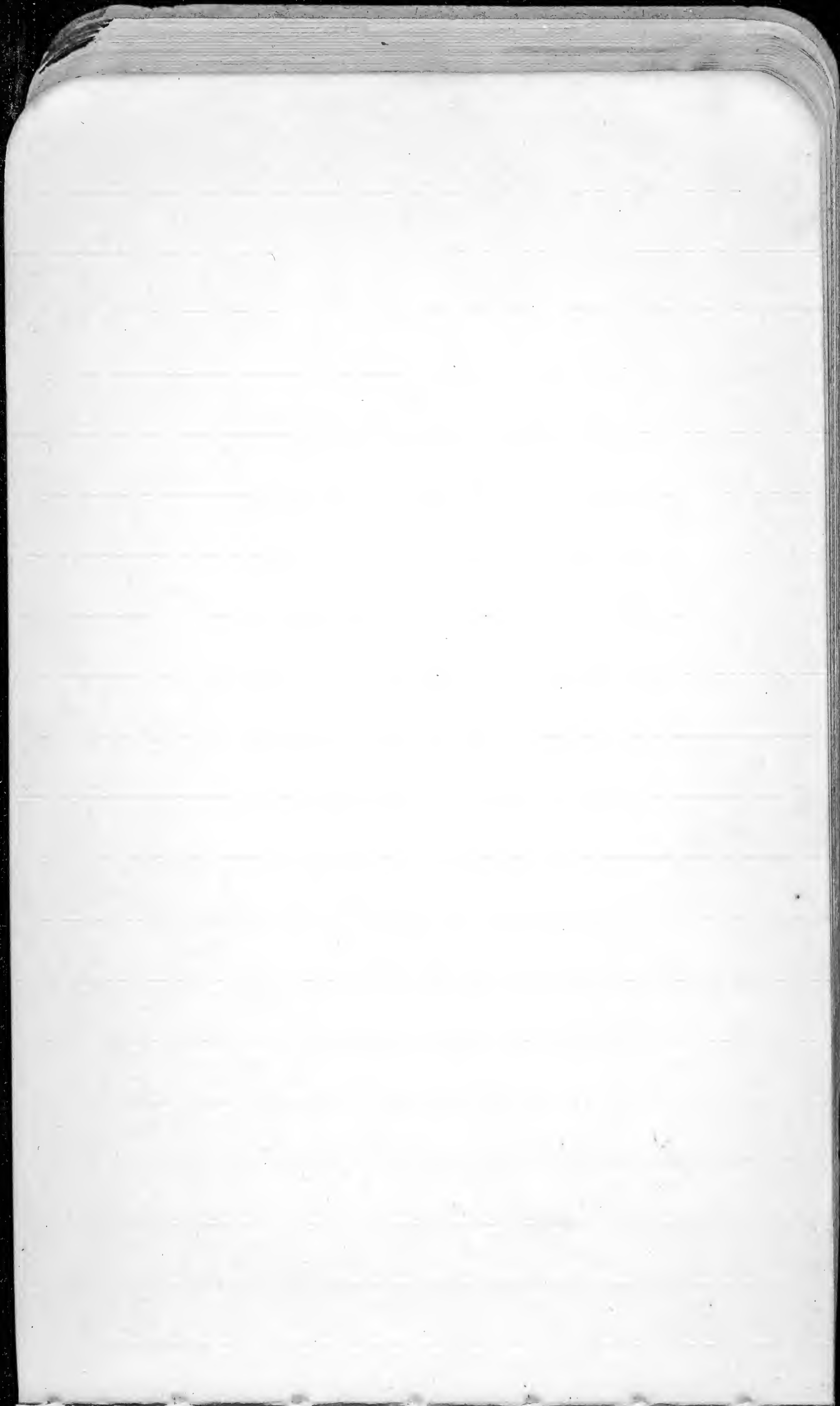
No. C.



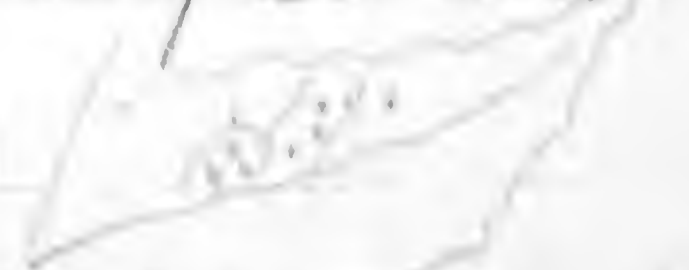
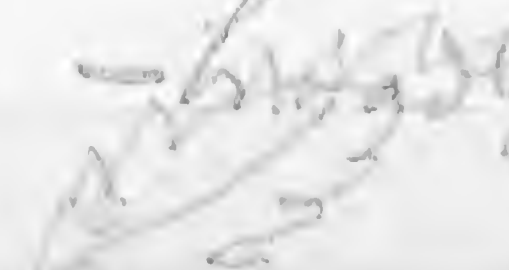
Somewhat similar in general
appearance. Frond small, (coarser
H.)
directed downward.

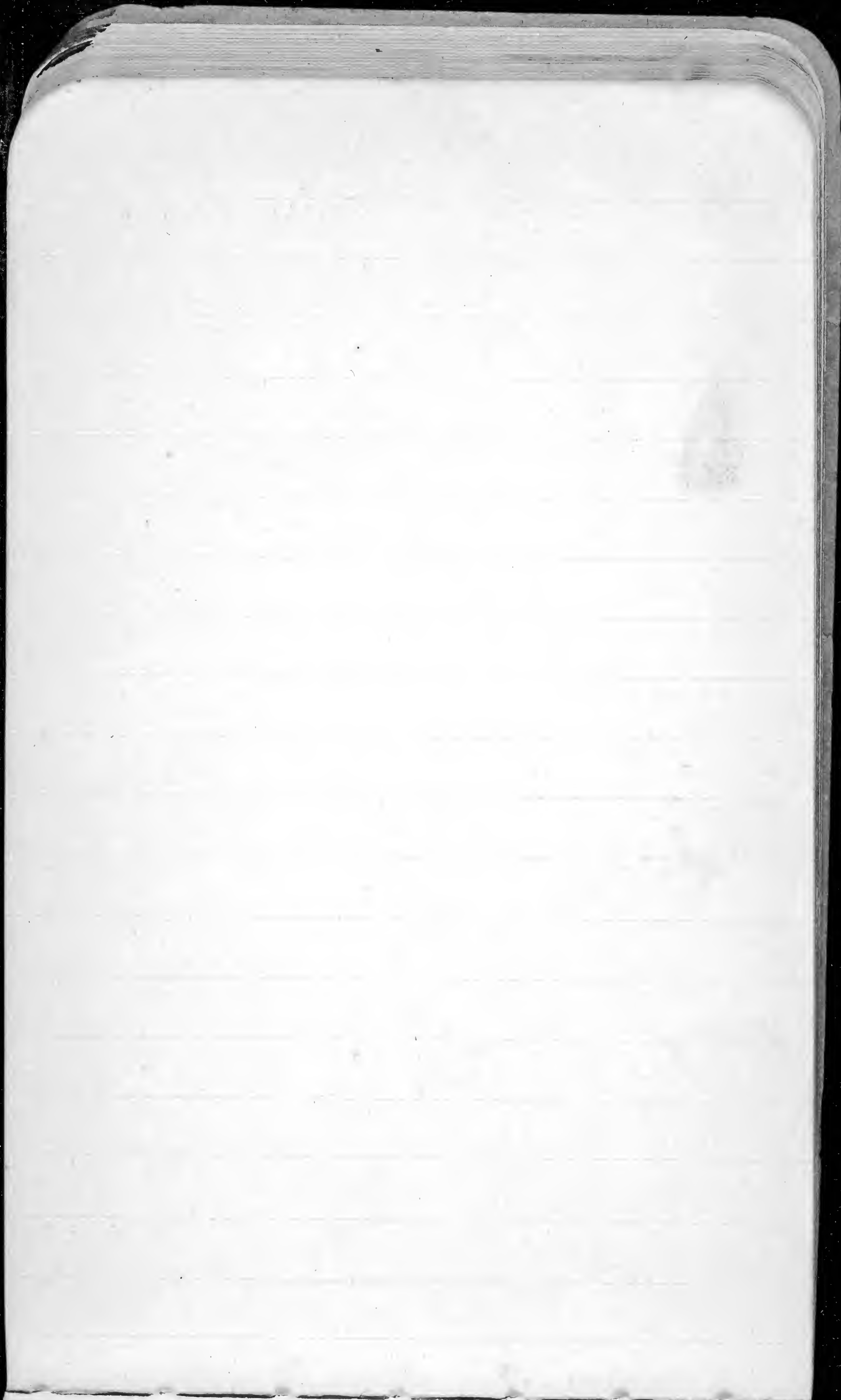
Growing on trunks of trees (standing
out in tufts) in deep woods west
of Castillo. Has teeth of peristome
quite long.








- 39 (700) upper surf. indented dots.
40 stag-horn Polypodium (?) La Grange
41 - Slender, narrow "  "
42 Danaea -
43 Polypodium? Fleishy rootstock "
44 Aspidium - 
45 - Hymenophyllum (divided)
46 - Asplenium - (Adiantum-like)
47. Hymenophyllum - large.
48. Dichroma (filosiuscula)
49 - Dark green, bristly fern (S.E.)
50 - Large Pteris (?) 
51 - Acrostichum (buc) 
52 - Similar to 50 - but more divided & hairy
53 - Cyathea
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58.

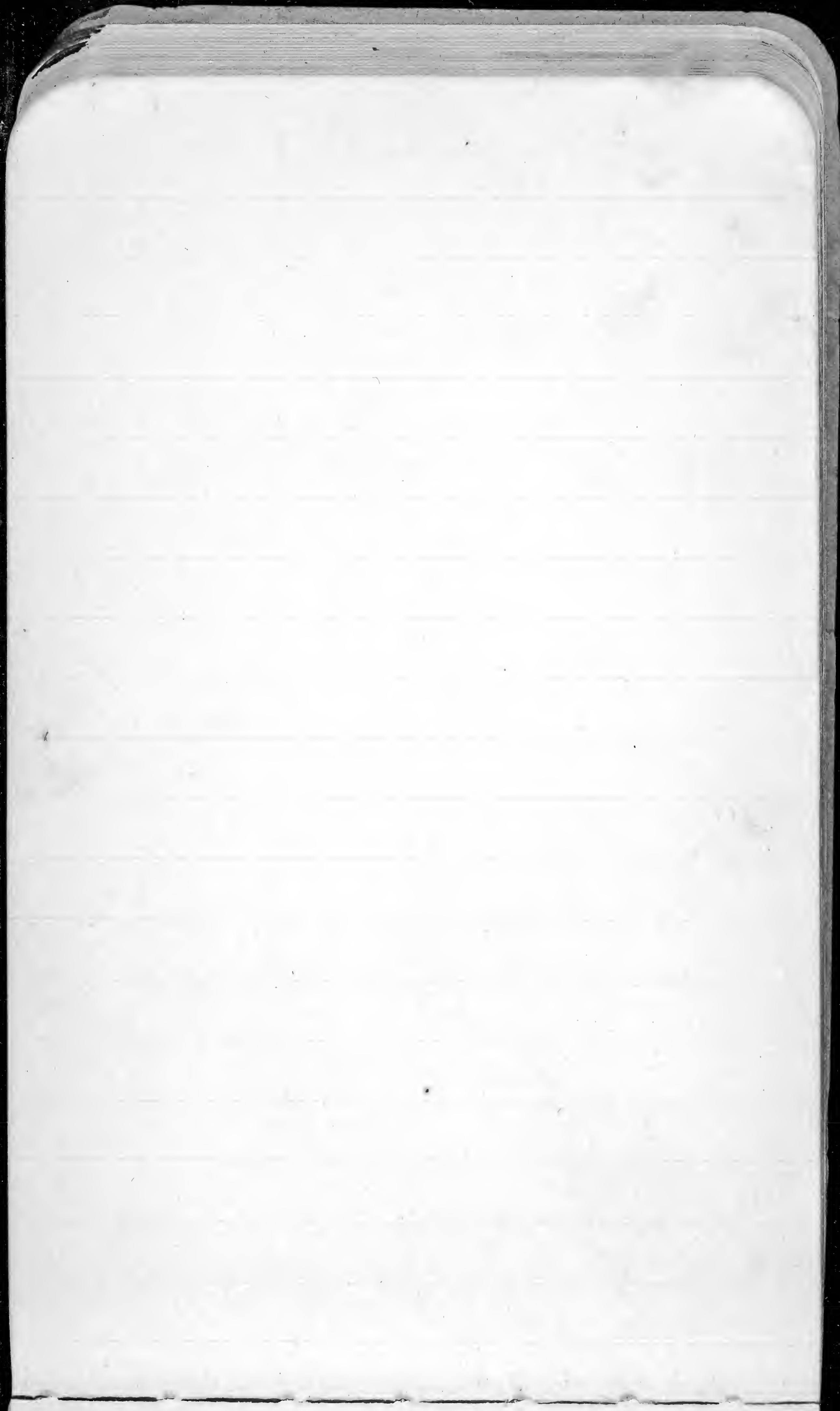


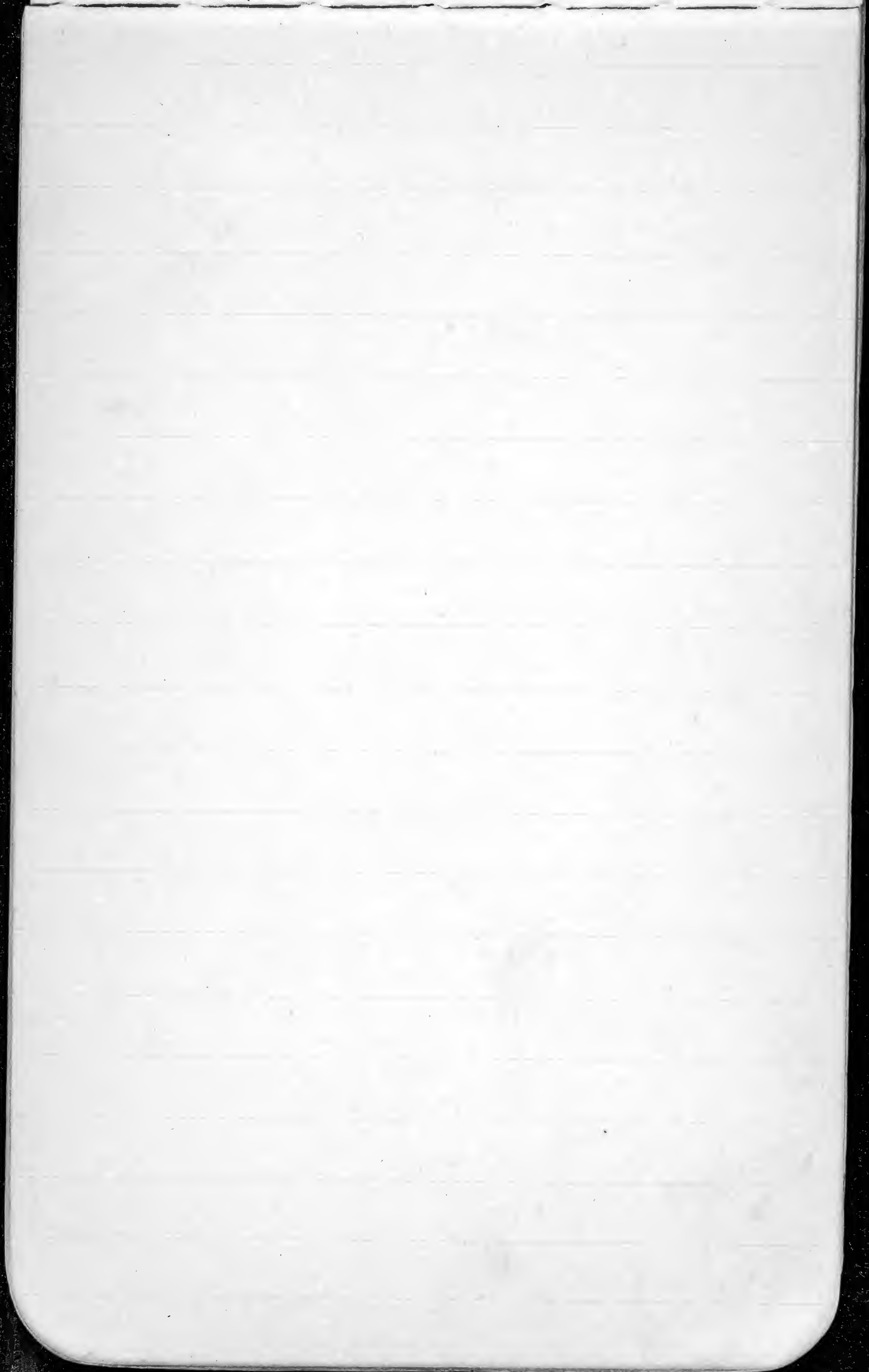
19. Blechnum -
20. Gymnogramma -
21. Polypodium - sori on stem in ^{1 pin} ~~midst~~ of pinnae
22. Hymenophyllum - little one
23. Scolopendrium
24. Adiantum - rusty
25. Aspidium (heptalepis-like) on trees.
26. Adiantum - 1-pinnate
27. Lance-lives - frond in groove back from margin.
28. Small, brown, sori scattered, on trees.
29. Large Pteris.
30. Asplenium - 
31. Phegopteris (C) Very large, Δ.
32. Polypodium - Lance - sori in two rows ^{between}
33. ~~Pteris~~  Sori scattered - 1 pinnate
34. Aspidium thelypteris-like
35. Asplenium - coarse, many lines per
36. Aspidium - (like no 10) 
37. Pteris-like pinnae - frond minute
38. Phegopteris - ~~large~~ Δ (very large)
Lobe more back 



Ferns

- 1 - Narrow tall - frond on edges. ^{sterile} Fertile
- 2 - Polypodium - banana plantation
- 3 - Acrostichum - climbing
- 4 - Delicate Pteris
- 5 - Stag-horn Pteris
- 6 - Small Adiantum-like Pteris
- 7 - Schizaea
- 8 - Asplenium - ^(see)  broad
- 9 - Aspidium ^{HH} (?)  Frond lance, entire ^{cordate at base}
- 10 - Polypodium -  3 divided, upper 3 lobes ^(Phacel) ^{lobes project back.}
- 11 - Dichroma -  1 pinnate, ^(like 37)
- 12 - Dichroma - tree fern
- 13 - Aspidium ^{HH}  ; hairs - Phegopteris-like
- 14 - Asplenium ^{HH} - ^{pinnae truncate at base} pinnate entire, ^{front} double
- 15 - Polypodium - Tile roof - climbing
- 16 - [•] - (pinnate)
- 17 - Vittaria (?) -
- 18 - Rhipidolepis cicutaria





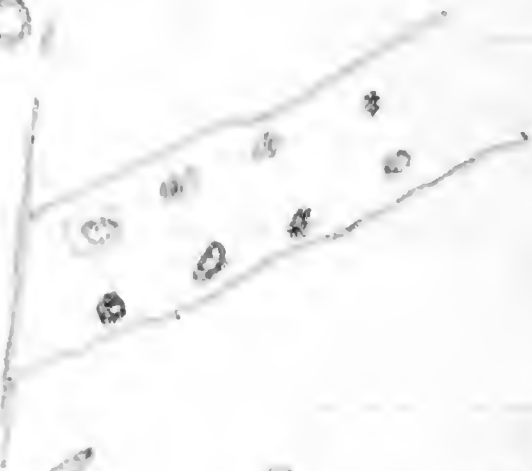
THH

Nephrodium

54 ✓ macrophyllum
Bah.

Aspidium - (like no 50) semi
in 2 rows between veins.

Found ~~the~~ -
along San Juan below East




A lot runs back from lower
pinus.

(The great large lance.
Polypodium 4°-5° long
is used for Calentura.)

53 ✓
Cyathea arborescens, var.
trunk
12° high (see piece) spec.
fruits 10 ft long.
Whole tree 15° or more
high.

Along Savalos
Fronds 3-pinnate.

 pinnule x 1.

✓
51. *aliennum*
Aerostichum ~~aliennum~~
Species 2° high.

Fronds 1 pinnate, sporangia
dark (black?)

Sterile frond with 5 wide
entire lobes — pinnate.

Deep woods S. W.

Hypoderris

seemannii

52.

Frond ^{Pinn.} nearly 3° long pinnate
(term. half only divided) long-
tapering


Sori large, scattered

Somewhat like (50) in gen.

appearance, but much more
divided, & sori fewer & larger

Stipe brown, only slightly

scaly. Deep wood, on creek bank
S. west.

shape = 

Stipe dark brown, hairy (short).
Grows in tufts S.E. from
Crest. in deep woods.

No Fruit.

||||

50.

Phlegopteris draconopterum

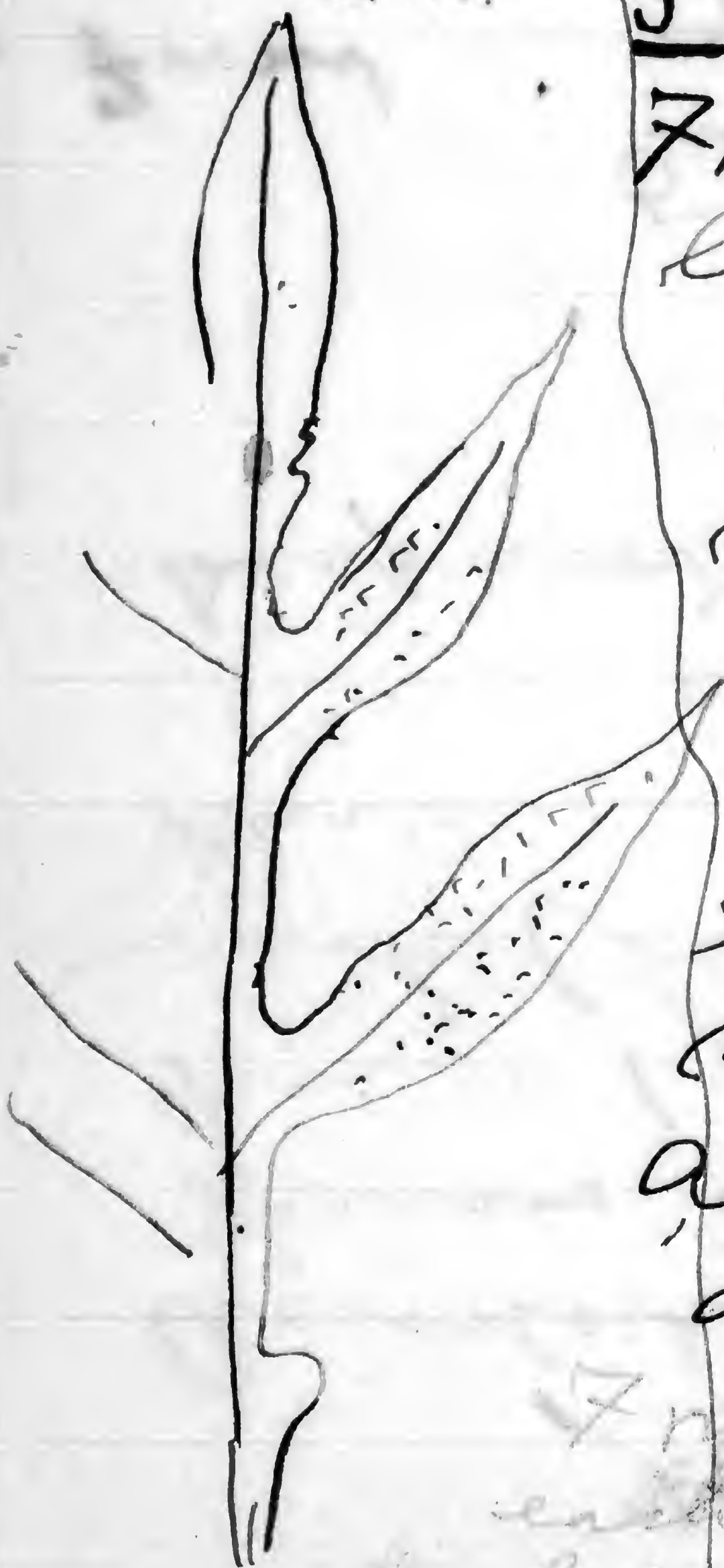
Fronds 2°-2½° ft
long, usually 5
-lobed, pin-
nae small, scattered,
no indusium.

Phlegopteris!

Stipe dark brown,
scaly.

Along creek in
deep woods S.W.

Fruit dots several in
each reticulation (i.e.
between veins)



TH XXXXII

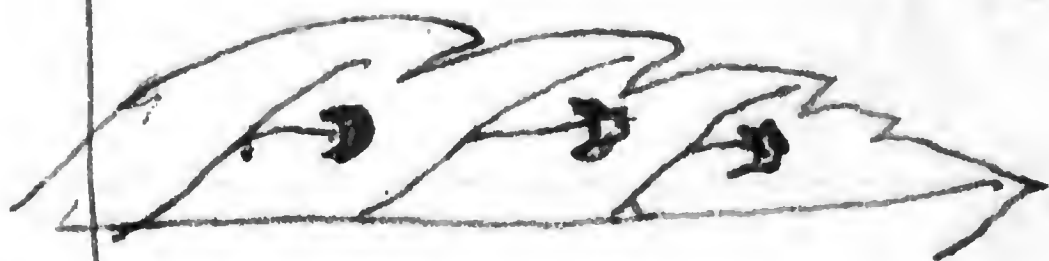
48.

Mephrodium

kawinakyarum

~~Dicksonia~~ - (frond shaped as in ^{Baker}
~~filosiuscula~~.)

Fronds $1\frac{1}{2}^{\circ}$ - $2\frac{1}{2}^{\circ}$ long, twice
pinnate, pinnate with winged
rachises, pinnae deeply cut,
segments sharply serrate or
dentate.



Sori crescent-shaped, numerous
attached on inner line.

Stipe green, hair -
brown scaly at base,
on ground - S.E.

11 See word

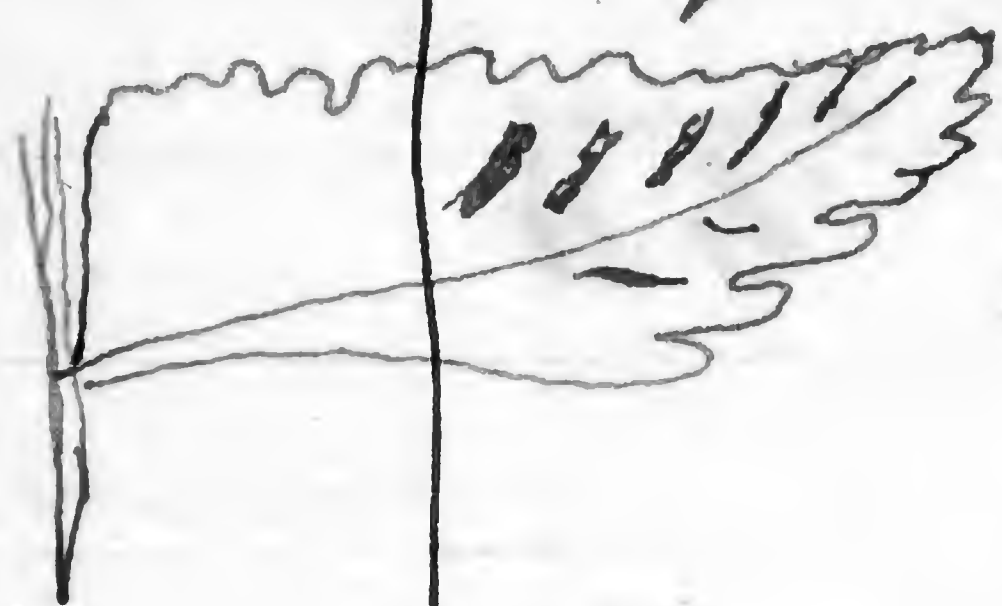
49.

alsophile infectus

Hamatis nigricans

Dark green fern with
2-pinnate fronds, pinnae

Grass in tufts.



1/ma X/.

47 ✓

membranaceum L.

richomene

Large ~~Hymenophyllum~~
(like no. 22.) found on clay
banks along creek in deep
woods, S. E. from Castles.

May 1st 40. 22(?)

Richardsonia

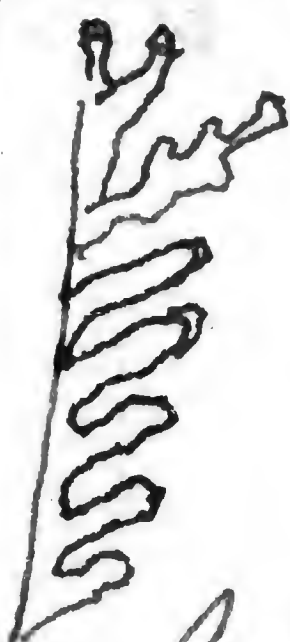
brassicifolia

45

Small, delicate pinnately
divided
^{small}
on tree
Castillo

Hymenophyllum

in woods S.W. from
Fronde 1' long.



a little beauty.

46



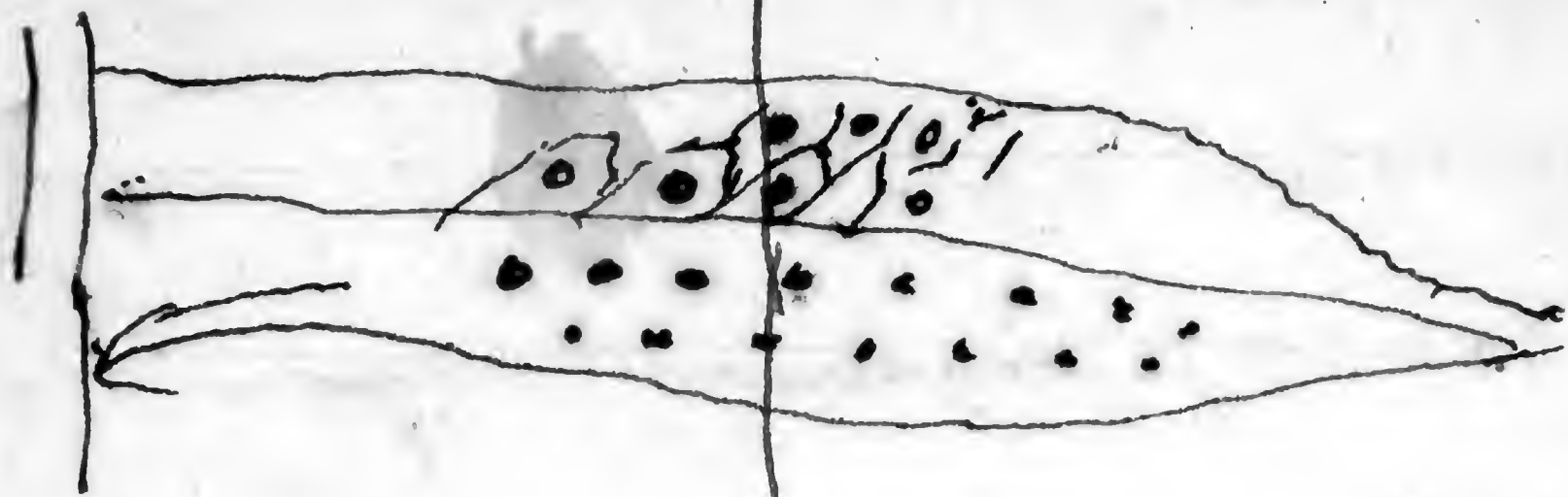
|||||

Asplenium

laetum Sw.

Found on rocky
banks of creek in deep woods
S.W. from Castillo.

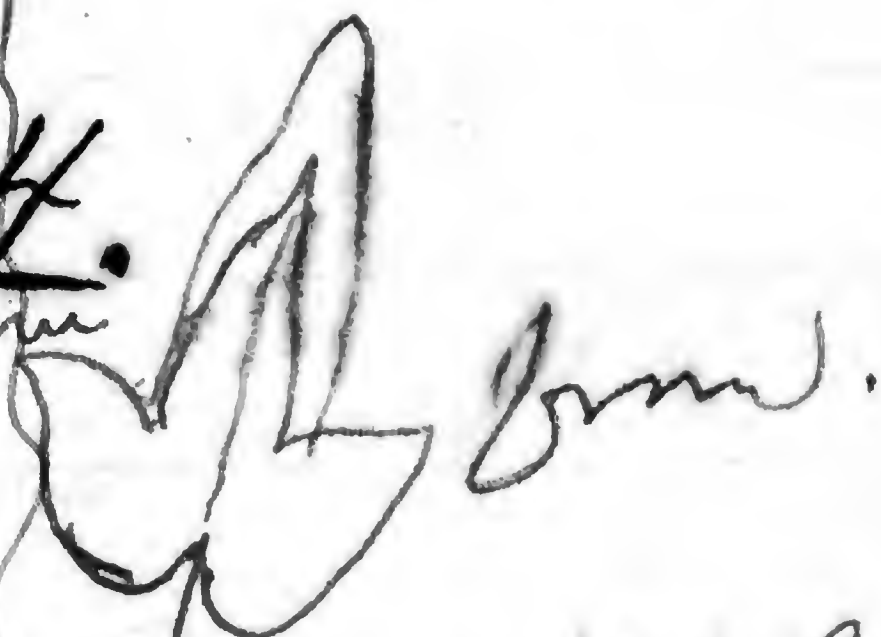
Fronde 1 pinnate, stripes
dark green, not shining.



On fallen tree, near La
Guana.
(Rootstock in alc.)

44.

Aspidium — ^{trifoliatum}



brown.

Frond (green part) $4\frac{1}{2}$ ' long
Stipe 6 in, brown, short hairy
Frondlets large, scattered between
main veins on lower surface

On banks along the San Juan

Davallia saccoloma, Spreng.

42. ✓

Davallia — Fronds 2°-4°-
1-pinnate, pinnate lance, entire,
dark green 6'-12' long. 1'-1½'
wide; dark green.

Frond lance-ovate
Stipe rough, dark brown.

Fruit around margins, in a
row of grooves.

In low place (on bank) along
the La Guama.

Pinnae crenate or serrate at
apex & without fruit.

43 ✓

Polygodium toricenne — with fleshy, green,
rusty-scaly (small) rootstock.

Fronds 12°-18° long, 4'-4½' broad

1-pinnate pinnate lance.

Fruit in two rows on each
side mid-vein, sori small.

side of mid vein.

The upper surface of each pinna
has row of white indented dots
(pits) near margin.

Gymnogramme No. 40 ✓

^{pinnae}
The minute stag-horn fern found
on fallen tree near the La Guana.
Fonds $\frac{1}{2}$ ' - 1' long, in tufts.

Fruit dots large, along middle
of each lobe; no indusium(?)

No. 41 ✓

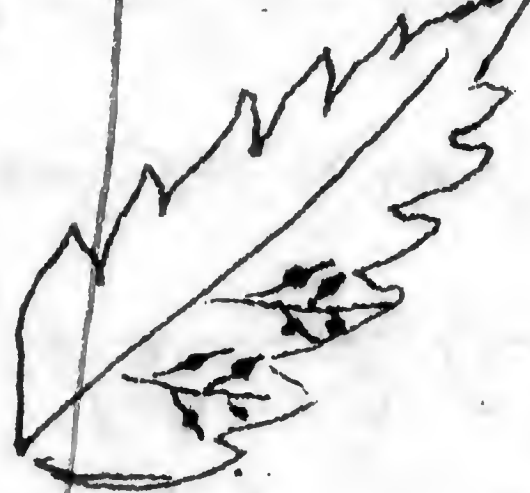
pectinatum

Slender long, narrow *Polypteris*
Fonds 20' long, 2' wide, 1-pinnate
pinnae entire, oblong, ~~for~~ medium sized
in a row on each side mid vein
6 to 10 in a row.



Stipe dark brown, short hairy
On log near the La Guana.

The lower pair of pinnae have each a lobe extending back.



Stipe coarse, brown-green, rough with obscure spines.

Grows along La Guana.

Nephrolepis cordata

No. 39, ✓

Small fern, 4'-14' long. On fallen tree, near the La Guana.

Fronds once pinnate. $\frac{3}{4}$ ' - 1' wide, 1-pinnate, pinnae auricled above.

Stipe short, brown, somewhat scaly.

Pinnae crenulate.



Indusium crescent shaped, attached along inner line, sporangia in 1 row on each

P. (Isoriopsis) tetragonum Sw.

No. 37.

Long pinnate frond, - pinnæ
(but not frond) Pteris-like,
again pinnate



Pinnule

Sori minute,

could not tell

about inclusion.

Pinnules crowded.

Stipe long, green (purplish) smooth.

Fronds 4' ft. long.

Found along La Guana.

No. 38

Nephrodium

effusum.

Bak.

Frond broadly Δ Lower part of

pinnæ 18' - 20' long.

Whole frond 3 or 4 ft - 3 pinnate

Segments sharply cut.

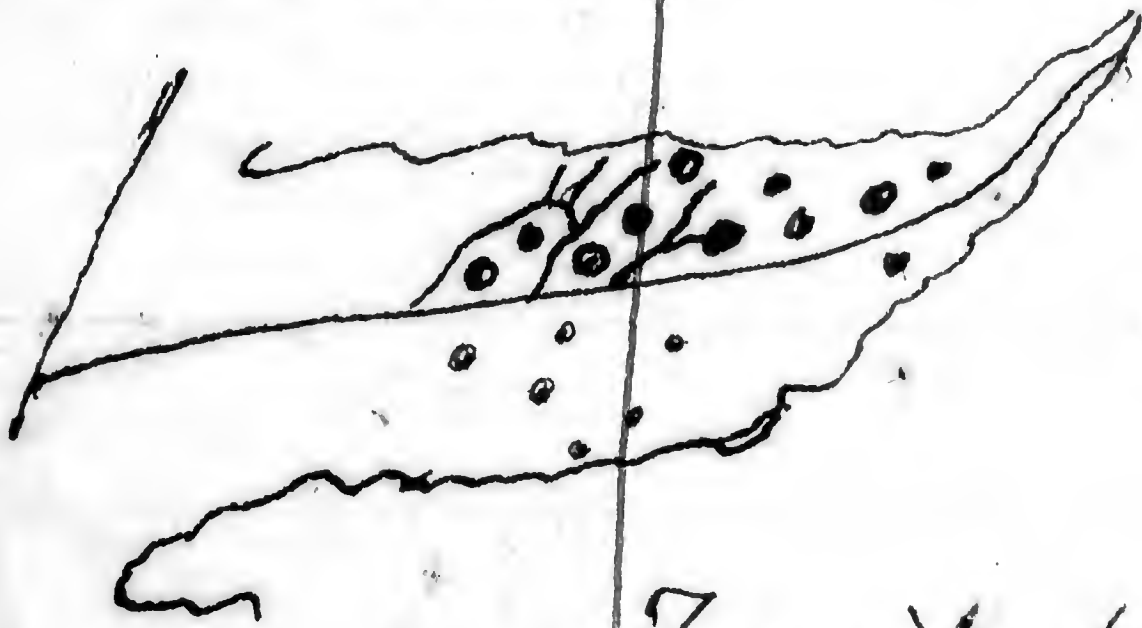
A *Phegopteris* (there does

seem to be a trace of an inclusion,
however) Sori small.

~~Aspid~~ *Nephrodium cicutarium* Bak.
No. 36. ✓

Some what similar to no 10
in general app. Frond Δ but
not distinctly 3 lobed, & no lobes
projecting back. Indusium shield
shaped distinct.

2-compound. Pinnules crenate.



Fruit dots in spaces
between veins.

Stipe brown, hairy.

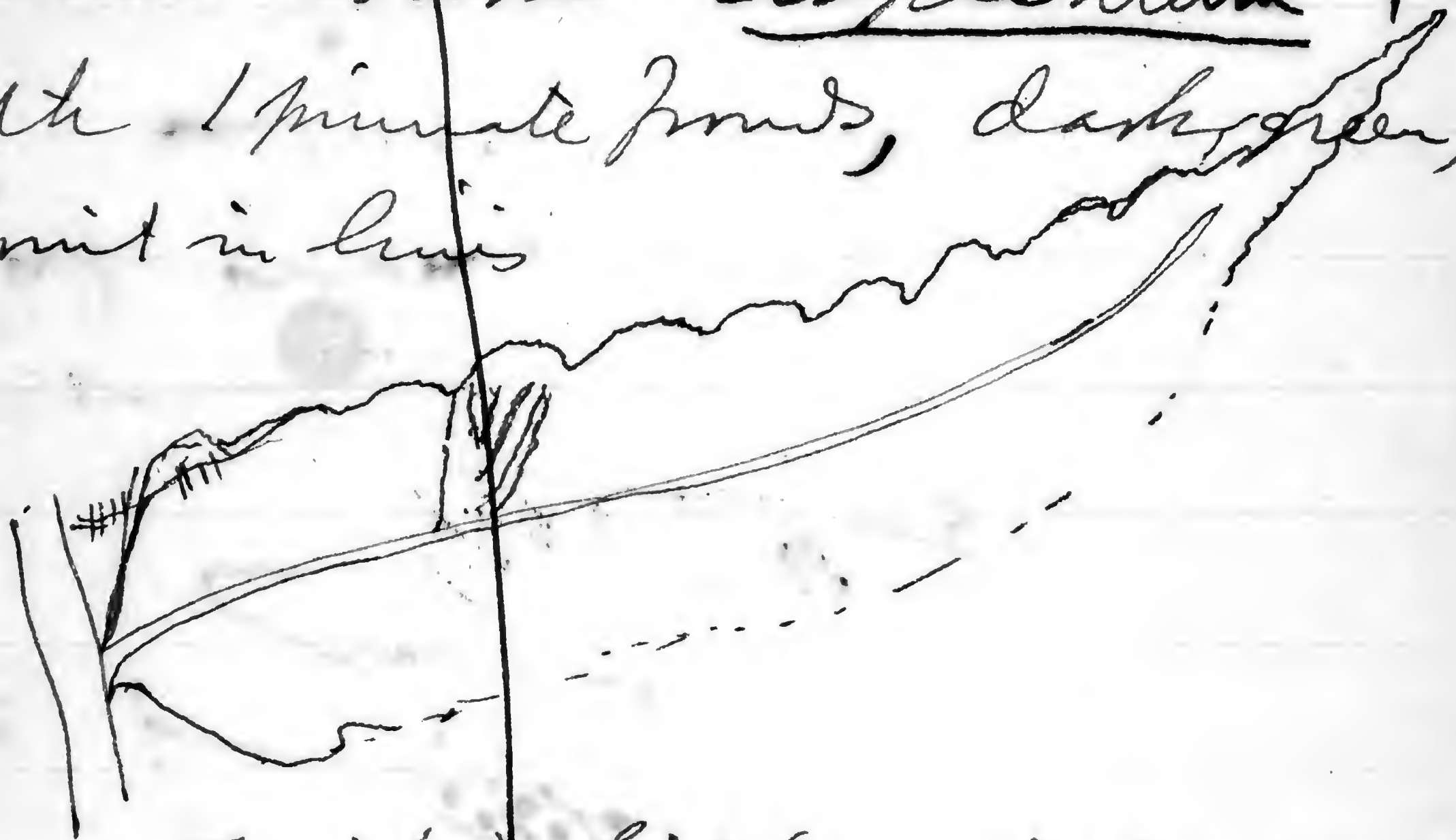
Found on banks along
La Juaia.

Frons deeply hairy above
Indusium crescent shaped.

No. 35,

altidifolium?

Rather coarse Asplenium?
with pinnate fronds, dark green,
fruit in lines



Fruit in lines (narrow) along veins.

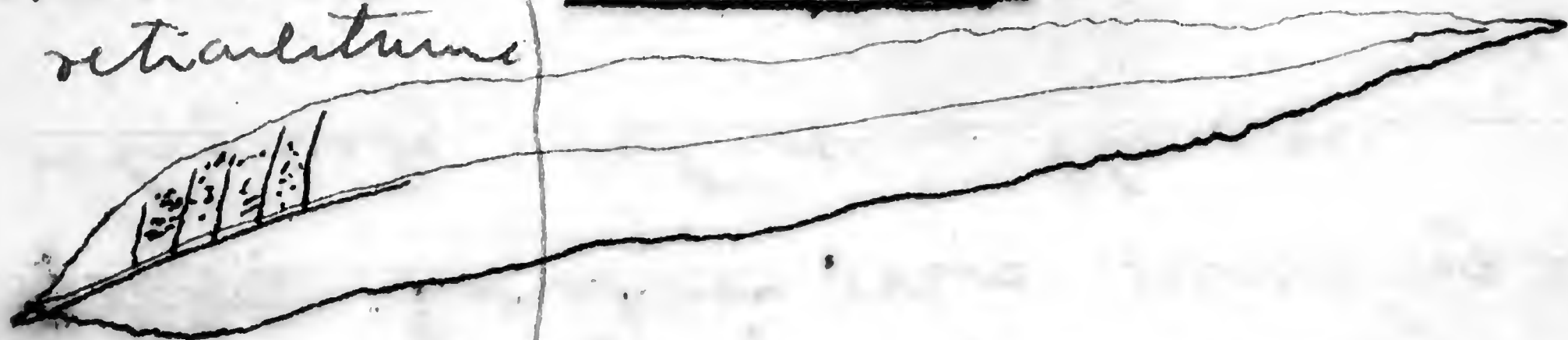
Stipe thick, greenish, spotted with
purple. Fronds 2' - 3' long
growing on wet bank along the
La Guana.

Stipe hollow.

No. 35

Merisium
reticulatum

No. 33. ✓



Fruit dots irreg, sporangia scattered,
no indusium; sporangia somewhat in
clusters between the veins.

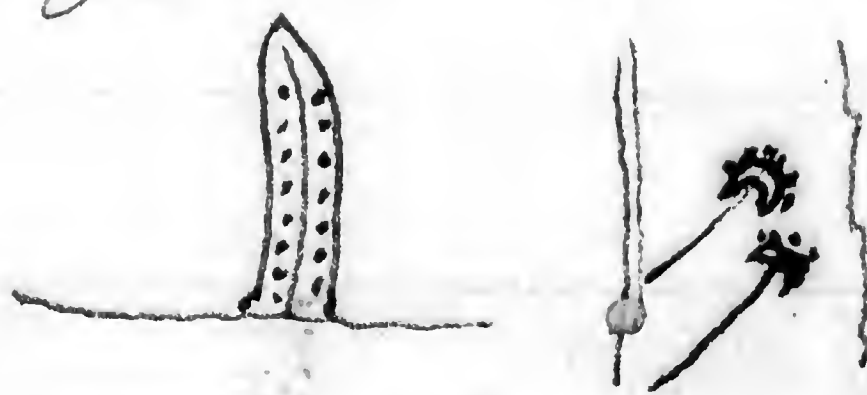
Fern 15'-24' long, sterile a
little broader.

Stipe green, not scaly,
Ferns along La Guana & in swamp on
Pellao's ranch.

No. 34. ✓

Nephrodium *conterminum*
~~*Aspidium*~~ - fern along the
La Guana riv. in clearing. Grows
in tufts 1½'-3' high.

(May be same as *Aspid. novaeboracensis*)
General aspect of *Aspid. novaeboracensis*



Ferns finely hairy above

No. 31.

Rheopteris ~~punctatum~~ ^{Thunb. ?} large Δ form

3°-4° long, 2 compound, lower

pinnate long 

Stipe green, scaly at base & somewhat
above. Pinnules dentate.

No indurium

In low place west of Castillo

No. 32. ✓

Polypodium ^{cram-folium} growing on tree

west of Castillo. 2'-2½' broad.

Fonds 1°-2° long, in tufts,

entire - lance, tapering to base
acutish or obtuse.

~~Stipe~~ Sori in rows running out
obliquely between the veins.

Pteris aculeata. I suppose
(the number was lost).

No. 29

x

Large Pteris, — somewhat like
aquiline (but seems to me finer.)
Fronds broadly Δ , with 3
main divisions. Growing
(mostly single fronds) in deep
moist woods, N.W. from Castillo.
Free.

x

No. 30. ~~III~~ ~~III~~ etc

Asplenium auritum.
fronds 8'-15' long,
in tufts; stipe blackish at base.
rather smooth, greenish above.

Pinnate



Fronds once pinnate.

Growing on tree, & some on
ground in low ~~place~~ ^{place} in
a clearing above Castillo.

X

No. 27.

Jaenitis angustifolia

Very narrow frond, linear-lance,
entire.

Frond. in groove (interrupted), a little
back from margin.

On tree. In low woods N.W.
from Castillo.

10' high. Fronds along creeping rootstock.

X

No. 28.

*Hemionitis
citrifolia* Hk.


Small fern; fronds obovate, acute,
entire, 2'-3' long. On small
trees in ~~deep~~ woods N.W. from
Castillo. In lines on creeping
rootstock.

No indusium.

Sporangia in little irregular
scattered clusters.

No. 25. ✓

Long Nephrolepis - ~~like~~ ^{acuta} ~~Claytonia~~
growing in drooping tufts on
trees (not high) in low woods
N.W. from Castillo.

Pinnæ with margin as 
Fruit dots near margin, in one row
on each side of midvein.

Pinnæ ²auricled above - at base
grows 3° or more in l.

No. 26. ✓

x Adiantum ^{Kaulfussii} - with only 1-pinnate
fronds. 6-8 pairs of pinnæ.
1° - 1½° high.

Grows in small tufts in low
woods N. West from Castillo.

Asplenium No. 23
~~Scolopendrium~~ serratum (Asplenium)

On trees in deep, low woods, N.W.
from Castillo.

Fonds entire, 1°-2° long, in
clusters. Rootstock a short, scaly,
compact large bunch.
Sori long, on veins.

x No. 24 ✓ & obliquum
Adiantum ^{hirsutum} ~~black, rusty-~~
scaly stipe. (Same as
~~Onoclea~~ ^{R.})
Found in low woods, N.W.
from Castillo.
Free.

No. 21. sororium

Polypodium — In general
appearance like no. 14.

Fronde pinnate, 2° long.

Pinnate entire, simple sori
in a line on each side of mid-
vein, about $\frac{1}{2}$ way between
mid vein & margin.

Pinnate somewhat crenulate.
In deep woods west of Castillo.

x

No. 22. ✓

Delicate ~~Hypoleucomorphum~~ Trichomanes reptans, Sw.
~~Trichomanes~~ (?) creeping by
rootstock on trunks of trees.

In deep woods west of Castillo.
Fronde palmate.

no fruit, (2)

no. 18.

Aspidium semi-concoloratum

~~Aspidium (exaltata?)~~

Fonds 2-4' long. In tufts
along banks of small stream
west of Castillo. Very prominent
here. Pinnule ^{above} ~~free~~ below.

X

No. 19. ✓

Blechnum occidentale Same as no.

— from Ometepe.

Along banks below Fort at Castillo.

No. 20 ✓

Gymnogramme hartwegii Same as no.

— Ometepe.

On banks below Fort, Castillo.

✱

No. 15.

Polypodium ^{~~peruvianum~~} climbing on
tile-roof - Hanging from roof.
Frons entire, fruit in one row
on each side of midrib.

Castillo. Frons 3'-6'

No. 16. [✓] phyllitidis

Polypodium (2) — (2) Found on
tile roof with no. 15. Used
for fever.

Frons entire, punctate with
dots.

No fruit.

No. 17

Polypodium
angustifolium

Pittaria (?) — (2) Found
with 15 & 16. Frons
very narrow. 6'-

Indusium cup-like
Found in woods SW. (there was
almost no stem). 2-compound

No. 13. *Neph. cicutarium*

Triangular Aspidium, -

hairy, with general aspect of
Phegopteris hex. 15" - 24"

Indusium attached by inner
edge, making sorus somewhat
crescent shaped. Sori rather
large.

In deep woods ^{West} ~~W.~~ of Castillo.
Free.

No. 14. *Asplenium* ^{*sylvaticum*}
~~*grandifolium*~~ ^{Sw.}

Asplenium - Fronds pinnate,
pinnate entire, truncate at
base (or auricled above)

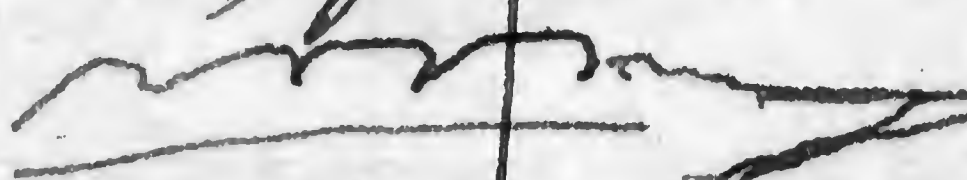
Sori very long, double (on each
side of vein) - Fronds 10" - 1 1/2'

In deep woods ^{West} ~~W.~~ of Castillo
Free.

P. (Goniopteris) tetragonum Sw.

No. 11.

~~Dichroma~~? Fronds - $1\frac{1}{2}^{\circ}$ - 3° long.

1-pinnate, pinnate numerous,
each 

Frut dots small, on middle
of vein.

Found in deep woods ^{West} ~~W~~
of Castillo. Free.

X ^{etc} ~~subgim~~
~~Dichroma~~ No. 12.

~~Cyathus~~! Tree-fern. Stem


was about $1\frac{1}{2}^{\circ}$ long, and

1" in diam (or more). The

fronds were about 2° long each,

rachis spiny.

~~No fruit.~~


 - pinnule

Growing in deep woods

West ~~W~~ of Castillo. Free.

Called Manuel Leon by natives.

Neprodium endress
No. 9.

Aspidium - ? - Indusian
lunate, , crenulate on outside,
attached by concave edge.
Frond lanceolate, entire, base
cordate. 12'-18' (?) West
Found in deep woods ~~se.~~ of
Castillo. Free.

Aspidium trifoliatum
No. 10.

Polypodium - Frond broadly
 Δ , 3 divided, upper lobe ~~with~~
3 lobed, each of lower with
a lobe projecting back. Sori
large, scattered.
In deep woods, free. West
Castillo. ~~se.~~ of
12'-15' high.

Growing on hillsides in deep
woods ~~East~~ West of Castillo.

1111 No. 7. ✓
Trichomanes ^{elegans} Fertile fronds, narrow,
undivided. Sterile pinnately
divided. 8' - 12' high.

On banks of a gulley in
deep woods ~~East~~ West of Castillo.

No. 8. ✓
Asplenium a. plantaginifolium

Asplenium - with lanceolate
undivided fronds, rounded or tapering
toward base, sori elongated, on
veins, fronds serrate toward
apex.

Found in deep
woods ~~East~~ West of Castillo.

Free 1' - 2' high

Pteris quadrifida

no. 4.

Var.

Rather delicate *Pteris*. ~~*beauritia*~~

Frons triangular. 8'-20' high

Pinnate 5 or more.

Grows in deep woods, - free.

~~West~~ of Castillo.

L

Jaenitia No. 5.

~~*Adiantum*~~ ~~*furcata*~~

- Stag-horn Fern.

Small form - palmately divided.

Growing on a tree (on side of trunk). West of Castillo

6'-8' high.

More common
N. West.

No. 6


~~*Adiantum dolosum*~~

Pteris (*Adiantum*-like) small,

fronds 3-pinnate.

The sterile fronds often undivided
narrow-heart-shaped. 6'-10' high

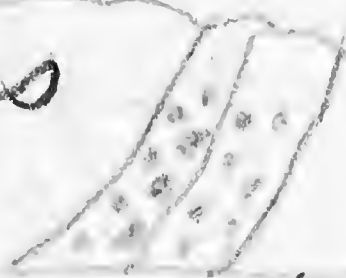
No. 2. ✓
Polypodium (Goniophlebium) crenatum
Indusium none.

Ferns 1-pinnate, pinnate lance,
cordate (somewhat) at base, margin
toothed so  15' long.

Pinnate 5 pairs.

In banana plantation, Castillo.

Maybe same as



No. 3 ✓

Climbing Acrostichum porrifolium

Climbs on trees, etc. by its rootstock
(slender) and has often 2 or 3
tufts of fronds at some distance
from each other. Sterile

fronds plentiful, fertile just
coming in, green, narrower,
the sori covering lower
surface. Runs up 2°-7°.

Common in woods West of Castillo

Ferns of Castillo, La Juana,
and Sabalos.

(When no loc. is given Castillo is understood.)

Dictyoxiphium panamense.

X

No. 1

Fern with entire narrow fronds, fertile narrower. Sporangia in marginal groove. Grows 1' - 2½' high.

Found in woods, growing free,
west
~~South~~ of Castillo. alt. N. W.

